

REMARKS

Applicants have amended the description to properly reflect the status of the U.S. Patent Application cited therein.

In the Response to Restriction Requirement filed on April 4, 2003, Claims 16-22 and 26-29 were canceled without prejudice. Accordingly, Claims 1-15, 23-25, and 30-40 were pending at the time of Examination. Applicants note that the Examiner erroneously states in the Office Action Summary that Claims 1-40 are pending. Further, at page 2 of the Office Action, the Examiner erroneously states that "This application contains claims 16 to 22 and 26 to 29 drawn to an invention non-elected without traverse in Paper No. 7."

New Claim 41 has been added. Support for Claim 41 appears in the specification at least at page 3, lines 25-28; page 5, lines 16-19; page 10, lines 26-29; page 13, line 16 to page 14, line 20; and in FIG. 6.

The title.

The Examiner states:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.  
(Office Action, page 2.)

The title has been amended to read --WAFER HAVING ALIGNMENT MARKS EXTENDING FROM A FIRST TO A SECOND SURFACE OF THE WAFER--. If the Examiner requires further amendment to the title, Applicants request that the Examiner suggest a title or describe with specificity why the title is not descriptive so that Applicants can make an appropriate amendment.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of the objection to the title.

The disclosure has been updated.

The attorney docket number has been replaced with the corresponding U.S. Patent Application Serial Number.

For the above reason, Applicants respectfully request reconsideration and withdrawal of the objection to the disclosure.

Claims 7 and 36 satisfy 35 U.S.C. § 112, second paragraph.

The Examiner states:

In claims 7 and 36, it is unclear and confusing to what is meant by "a **flat** extending in said second direction." (Office Action, page 2, emphasis in original.)

The Examiner's statement is respectfully traversed. At shown in FIG. 1 and described at page 6, lines 21-24 of Applicants' specification:

In this embodiment, wafer 110 includes **a flat 113, which is a cut straight edge of wafer 110. Flat 113 extends in the second direction, e.g., horizontal in the view of FIG. 1.** (Emphasis added.)

Accordingly, one of skill in the art would understand what is being claimed in Claims 7 and 36 when read in light of the specification. Thus, Claims 7 and 36 satisfy 35 U.S.C. § 112, second paragraph.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claims 1-15, 23-25 and 32-40 are novel over Walker et al.

As discussed above, Claims 16-22 and 26-29 have been previously canceled thus obviating the rejection of Claims 16-22 and 26-29.

Regarding Claim 1, the Examiner states:

Walker et al. ... shows a wafer 115 comprising: a first surface (**top of 115**); a second surface (**bottom of 115**); a **first scribe line 255 coupled to said first surface**, said first scribe line extending in a first direction; a **second scribe line 260 coupled to said first surface**, said second scribe line extending in a second direction perpendicular to said first direction; and, a first alignment mark (**point where 260 and 255 meet**) formed at an intersection of said first scribe line and said second scribe line, **said first alignment mark extending from said first surface to said second surface**. (Office Action, page 3, emphasis added and in original.)

The Examiner's statement is respectfully traversed. Walker et al. teaches that the wafer is initially partially cut, i.e., the wafer is cut only partially through the thickness of the wafer. Thus, the "first scribe line 255" and "second scribe line 260" as asserted by the Examiner extend only partially through the thickness of the wafer. Accordingly, the "first alignment mark (point where 260 and 255 meet) formed at an intersection of said first scribe line and said second scribe line" as asserted by the Examiner also only partially extends through the thickness of the wafer. For the above reasons, the Examiner has failed to callout where Walker et al. teaches "said first alignment mark extending from said first surface to said second surface".

Specifically, Walker et al. teaches:

The backside of wafer 115 is then cut according to the patterning registered by the camera and aligned by registration marks 240 and 245. FIG. 21 shows **cut 255** in an X-direction and **cut 260** in a Y-direction. ... Wafer 115 is **partially cut** using a water-cooled wafer dicing saw. **The depth of the saw blade is set to cut partially through the thickness of wafer 115**, in one embodiment, removing enough material to easily divide wafer 115 in a later process, but retaining enough material to prevent water from entering cell gap 207 (FIG. 11) between wafer 115 and transmissive substrate 100. ... Because of the support provided by transmissive substrate 100, the depth of the saw cut can be very close to the thickness of wafer 115 without significant risk of water leakage, for example, **approximately 80%**

**of the thickness of wafer 115 can be cut.** (Col. 13, lines 27-54, emphasis added.)

Further, at singulation, the wafer is broken along the scribe locations to form separated individual display assemblies 300 as shown in FIGS. 28 and 29. Accordingly, after singulation, Walker et al. teaches separate individual display devices 300 thus obviating a wafer and the need for an alignment mark.

Specifically, Walker et al. teaches:

Once transmissive substrate 100 is vented, **the remaining silicon material at the scribe locations unifying wafer 115 can be easily broken and the individual display assemblies separated as shown in FIGS. 28 and 29.** FIG. 28 shows the separated individual display assemblies 300 from an X-direction and FIG. 29 shows the same assemblies 300 from a Y-direction. (Col. 15, lines 20-27, emphasis added.)

For at least the above reasons, Walker et al. does not teach or suggest a wafer comprising:

a first surface;  
a second surface;  
a first scribe line coupled to said first surface, said first scribe line extending in a first direction;  
a second scribe line coupled to said first surface, said second scribe line extending in a second direction perpendicular to said first direction; and  
**a first alignment mark formed at an intersection of said first scribe line and said second scribe line, said first alignment mark extending from said first surface to said second surface,**

as recited in Claim 1, emphasis added. Accordingly, Claim 1 is allowable over Walker et al. Claims 2-15 and new Claim 41, which depend from Claim 1, are allowable for at least the same reasons as Claim 1.

Claims 23, 37 and 40 are allowable for reasons similar to Claim 1. Claims 24-25, 32-36, which depend from Claim 23, are allowable for at least the same reasons as Claim 23. Claims

38-39, which depend from Claim 37, are allowable for at least the same reasons as Claim 37.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claims 30 and 31 are patentable over Walker et al.

As discussed above, Claims 1 and 23 are allowable over Walker et al. Claims 30 and 31, which depend from Claims 1 and 23, are allowable for at least the same reasons as Claims 1 and 23, respectively.

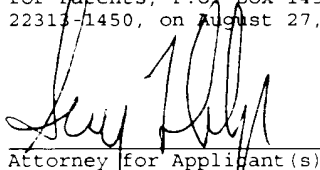
For the above reasons, Applicants respectfully request reconsideration and withdrawal of this rejection.

Conclusion.

Claims 1-15, 23-25, and 30-41 are pending in the application. For the foregoing reasons, Applicants respectfully request allowance of all pending claims. If the Examiner has any questions relating to the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicant(s).

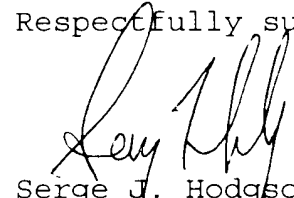
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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 27, 2003

  
Attorney for Applicant(s)

August 27, 2003  
Date of Signature

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